

Collaboration Core Infrastructure: Empower Your Collaboration Experience

Introduction

[Collaboration](#) is all about enabling diverse and distributed team members, both inside and outside the company, to effectively communicate, share information, and work toward the efficient completion of a common goal or project. The benefits of collaboration show up as productivity gains, better and faster decision making, improved communication and teamwork, and the ability for remote and virtual team members to participate more meaningfully.

Effective collaboration in the modern workplace uses a collection of tools, applications, and devices that span voice, video, web conferencing, virtual meeting rooms, instant messaging, social media, document sharing, and more. It must promote effective communications where, when, and how needed, whether that is in the boardroom, on the road, or across stakeholders who are geographically distributed. And it must do so in a secure, flexible, and easy-to-use way.

Although a multitude of devices and applications on the market today purport to deliver “collaboration”, a rush to make a departmental purchase that addresses only one collaboration need can actually be counterproductive. Deploying multiple narrowly focused tools introduces complexity and sets up barriers and frustration for users who have to become familiar with multiple products with different user experiences and procedures that vary depending on whom they are collaborating with and the tools they have. This type of technical complexity and noncompatibility can actually prevent efficient collaboration as well as ensure that collaboration investments go underused.

This paper explores why and how selecting a proper architectural foundation unifies the collaboration experience to deliver the greatest business benefits to your organization.

The Value of Implementing a Collaboration Core Infrastructure Approach

Before investing in any new collaboration components, it is important to articulate exactly what you want collaboration to deliver for your organization. The following three themes came up numerous times from customers who embarked on this planning process. These customers generally believe that a collaboration solution needs to deliver the following:

- It must provide an intuitive and consistent user experience; it must have a similar design and feature set across a diverse array of platforms, endpoints, and devices.
- It must always be available everywhere - from the browser to the boardroom; inside and outside your firewall; and when delivered from your data center or from the cloud (or both).
- It must be simple-to-manage, and must easily integrate into your organization's existing applications, workflows, and the network.

To ensure that you can deliver on all three of these key tenants, look to the foundation - what we call the collaboration core infrastructure - and ensure it is in place to support your goals. This collaboration core infrastructure is built on product components, but is more about an integrated architectural approach. This integrated architectural approach involves how the components are designed, but more importantly, how they are designed to work together to deliver consistency and the best possible experience across the entire spectrum of products that make up your collaboration solution.

“Through 2017, 30% of UC projects will fail to meet their objectives, because the UC solution deployed does not adequately meet user needs in terms of functionality or user experience quality.”

— Strategic Planning Assumption from Gartner Critical Capabilities for Unified Communications, 30 July 2014¹

In the coming sections we look at which Cisco products make up the collaboration core infrastructure and, we point out the real benefits, direct and indirect, your organization can realize by taking this approach.

Before moving on, though, let's consider some important points, or what implementing Cisco's core collaboration infrastructure does **not** mean. Embracing this approach:

- Does **not** mean you will be subjected to vendor lock-in, or that you will be tied to one manufacturer (such as Cisco) or platform for all of your collaboration components.
- Does **not** mean that your existing hardware and endpoint equipment and investments (from other manufacturers) becomes obsolete and needs to be replaced. You can continue to use these investments as part of your collaboration solution.
- Does **not** mean you need to start from the beginning and implement a complete solution all at once. On the contrary, deploying collaboration built on this end-to-end approach is a journey, not an all-or-nothing proposition. You can assemble components over time at a pace that fits your budget and timeline.
- Does **not** mean that you are locked in to any particular deployment model. As you will see, it is possible to mix and match according to your needs.

Cisco Collaboration Core Infrastructure

Cisco has created a collaboration core infrastructure that provides the intelligence behind the experience, and powers the industry's leading collaboration portfolio that also includes flexible cloud services and a comprehensive array of endpoints to fit any need and budget.

The Cisco[®] Collaboration core infrastructure has four key components, made up of products that have become increasingly integrated over time: call control and session management, conferencing, collaboration gateways, and unified management. By centralizing on these key components, we can define and simplify a single end-to-end architecture for unified communications and collaboration that provides the best possible experience for administrators and end users.

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Figure 1 illustrates the Cisco solutions that fit these categories, including the Cisco Unified Communications Manager for call control, Cisco TelePresence® Server for conferencing, Cisco Expressway for collaboration gateways, and Cisco Prime® Collaboration for unified management.

Figure 1. Cisco Collaboration Core Infrastructure



The four key components of the Cisco collaboration core infrastructure:

- **Call control and session management:** IP private-branch-exchange (PBX) functions provided by Cisco Unified Communications Manager sit at the very center of the Cisco collaboration core infrastructure approach. They also act as the “glue” that ties together and coordinates with the other collaboration applications and devices in the Cisco Collaboration portfolio. These functions offer companies the flexibility to connect every user with the tools and resources they need to be effective in their jobs.
- **Conferencing:** The Cisco conferencing solution includes Cisco TelePresence Server, our video conferencing bridge; Cisco TelePresence Conductor for video conferencing configuration and scaling; and Cisco TelePresence Management Suite (TMS) for provisioning and scheduling. These solutions bring together room-based video conferencing systems with ready-to-use video and mobile users, and they support on-premises, hosted, and hybrid implementations for superior flexibility. Anyone can join meetings from standards-based video endpoints, room-based systems, computers, or mobile devices. They can invite others to their personal, always-on meeting room, schedule meetings, or escalate one-on-one discussions to larger conferences, bringing everyone together with video. Users enjoy a great conferencing experience, with video resolution up to 1080p and intuitive, customizable, and adaptable meeting controls that provide an optimized experience regardless of the device they are using. Capacity optimization and intelligent conferencing resources management helps ensure meetings can include everyone and can be extended outside the organization.

- **Collaboration gateways:** Cisco has a portfolio of gateway products that are part of the Collaboration Edge Architecture and enable the secure yet simple access of collaboration services to anyone, anywhere, on any device, using any workload. The portfolio includes firewall traversal with Cisco Expressway; session border control with the Cisco Unified Border Element (UBE); Cisco TDM gateways; and the Cisco VG Series of analog gateways. These solutions work to enable any-to-any collaboration both inside and outside your network.
- **Management:** Cisco Prime™ Collaboration is the single management application that you can use for your entire collaboration deployment. It reduces management complexity and provides automated, accelerated provisioning, real-time monitoring, proactive troubleshooting, upgrade and migration management, long-term trending and analytics, and centralized license management across your entire voice and video network. Cisco Prime Collaboration delivers a premier operations experience through an intuitive user interface and optimized operator methodology, including user-based workflows that ease implementation and ongoing administration. Provisioning and deployment tools simplify new deployments as well as day-2 ongoing management tasks such as moves, adds, changes, and deletions (MACDs). Cisco Prime Collaboration also provides efficient, integrated service-assurance management, including continuous, real-time monitoring and advanced troubleshooting of users, devices, and the underlying transport infrastructures.

Interacting with Stakeholders Outside Your Firewall

Here's how two companies are using Cisco's collaboration edge technology to provide simple and secure collaboration beyond the firewall:

A Mid-sized Financial Services Company:

- **Simplified Network Access for Mobile Workers** - With over half of its employees in roles that require them to spend their time out of the office visiting customers, this company puts a premium on ensuring that they could still be productive. They deployed Cisco Expressway's secure mobile access along with Cisco's mobile client, Cisco Jabber. This combination enables both single-sign-on and VPN-less connectivity for mobile workers, allowing them to access all their collaboration workloads - both people and information - as easily, quickly, and securely as they would if they were in the office.
- **Extended the Office for Teleworkers** - Cisco Expressway enables VPN-less connectivity, making it possible for the companies' teleworkers to setup their Cisco endpoints in their home office and collaborate as if they are in the office.

A Large Consumer Goods Company:

- **Provided Business to Business Video** - This company saved millions of dollars on travel and significantly decreased their time to market by using Cisco TelePresence video conferencing instead of face-to-face meetings with their advertising agencies. Cisco Expressway, with its URI dialing capabilities, allowed them to securely collaborate with their agencies as easily as sending an email - no pre-scheduling of equipment or resources needed.
- **Enabled Conferencing for All** - This company also used Cisco Expressway as the gateway to connect their on-premises Cisco and third-party conferencing endpoints to the WebEx cloud, ensuring a common meeting experience that is available to anyone, anywhere, on any device.

Managing Complex Implementations with Limited IT Resources

Here's how one company is using Cisco Prime Collaboration to manage their UC network:

A leading semiconductor manufacturer deployed a Cisco Unified Communications multi-site UC network solution that included 15,000 hard phones and 9,000 softphones served by 3 globally distributed clusters. Network Engineers needed a way to monitor this complex environment, measure performance over time, and collect call quality metrics to ensure that any issues could be resolved rapidly. In addition, with rapid company expansion over the next 8 - 10 years planned, the company also needed a solution that would help them optimize UC resources and plan for future capacity. To accomplish this, the company deployed Cisco Prime Collaboration Assurance & Analytics to manage their UC network.

Prime Collaboration Assurance enabled IT to significantly reduce the time it took them to troubleshoot issues. Its network topology views with built-in dashboards and intuitive drill down views allowed them to quickly gain visibility of the entire UC deployment, pinpoint and isolate issues, and resolve them faster. It also allowed them to monitor third party endpoints, thus removing the need for multiple management platforms. Prime Collaboration also provided IT with Voice Call Quality reports that included detailed metrics on packet loss, jitter and MOS scores, and Type of Service (ToS) values - all crucial to ensuring Quality of Service (QoS). These reports allowed IT staff to establish baseline performance metrics for their network, against which call quality could be accurately measured.

Prime Collaboration Analytics is used to provide historical reporting of key performance indicators (KPIs) and help the network managers analyze actual usage patterns and demand for UC resources, to identify trends and improve capacity planning, and to determine the optimal allocation of network resources. These reports will provide invaluable insights on how and where to effectively scale resources as growth occurs in coming years.

The Innovative Benefits of Cisco's Collaboration Core Infrastructure Approach

Although many of the components mentioned previously exemplify "best-of-class" solutions that deliver powerful collaboration benefits in their own right, it is when used together that the real benefits become apparent. Together, they create a comprehensive and powerful end-to-end collaboration solution where the individual components complement and extend the value of the others, thereby creating a "one plus one equals three" scenario. The advantages of adopting this end-to-end infrastructure approach include:

- **Superior collaboration experience**, regardless of your location or the device you use: Everyone can meet using familiar meeting environments; they know what to expect, and can therefore focus on the value of the discussion rather than worrying about how to join a meeting or view content and video. Views and quality are optimized for each device, so everyone has the best experience that their device can support.
- **Out-of-the-box integrations** that do not require complex and difficult configurations to work together: An example is the integration between Cisco Unified Communications Manager and video, which gives you common features and design regardless of whether you use your IP phone or a video endpoint.
- **Any-to-any collaboration**: People want to collaborate from anywhere, with anyone, using the workload they need and the device they want. It should be as easy as making a phone call or sending an email message. Cisco Collaboration Edge Architecture is the industry's most comprehensive any-to-any solution that helps break down these barriers and simplify the user experience. The Collaboration Edge Architecture delivers: VPN-less connectivity so mobile and teleworkers can work as easily, effectively, and securely as they do in the office; open video federation for business-to-business and business-to-customer collaboration; secure connectivity to the cloud; interoperability with third-party endpoints and systems; and a full suite of public-switched-telephone-network (PSTN) connectivity options including an easier transition to Session Initiation Protocol (SIP) trunking.

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- **Central management and visibility:** Centralized management and granular, comprehensive visibility of your entire collaboration implementation is performed from a single management tool. This paradigm represents a significant improvement over the traditional approach that relies on the use of multiple nonintegrated management tools. Cisco Prime Collaboration is the single, unified management application for your entire voice and video network that delivers automated, accelerated provisioning; real-time monitoring; proactive troubleshooting; and long-term trending and analytics. You have visibility across your entire voice and video implementation, all from a single product. This single tool also means reduced training and a simplified management process for your IT personnel.
 - **Optimized packaging and flexible licensing** options help ensure that you purchase the solution that meets your needs, to align with your company size, IT staff expertise, and budget. The Business Edition packaged collaboration solutions deliver an appliance preloaded with collaboration applications that address predefined collaboration scenarios and company sizes, in single packages that are easy to order and deploy. And the traditional purchase model licensing options include Cisco Unified Workspace Licensing (UWL) that bases licensing purchases on “user roles”, with features and capabilities aligned to your job requirements. This feature provides tremendous price flexibility for customers.
 - **Fully virtualized** solution, end to end: Virtualization helps ensure cost-effective and simple deployment, management, upgrade, and migration processes.
 - **Delivery flexibility** for on-premises, cloud, and hybrid deployments: You can deploy the Cisco Collaboration architecture as an on-premises solution in your data center, as a hosted solution delivered from the cloud, or as a hybrid solution that connects on-premises components with hosted components. The hybrid option, in particular, promotes investment improvements from its open and interoperable approach by allowing you to “cloud-connect” your existing investments to new cloud services to extend your reach while satisfying your budget and growth requirements. And these cloud-based solutions can be delivered from multiple sources, from the Cisco Cloud, from private cloud solutions, and/or from the Cisco Powered cloud services delivered by certified partners.
 - **Better-together innovations:** In addition to the primary advantages to taking an end-to-end infrastructure approach to collaboration, you can realize numerous less obvious but incredibly powerful and compelling usability benefits by adapting the Cisco approach, including:
 - **Multistreaming** is the ability to deliver multiple video streams to an endpoint, meaning you can optimize layouts on Cisco Collaboration endpoints to make the best use of the screen viewing area. This feature is supported on single as well as multiscreen endpoints. Fully using available screen space for video as well as shared content means that all users will get the best experience their endpoint can deliver, in turn enhancing remote communication and improving business relationships.
 - **Cisco Intelligent Proximity** is a suite of features that activates when you bring your mobile devices into proximity of select Cisco voice and video collaboration endpoints. This feature allows you to synchronize mobile devices wirelessly - to accomplish tasks such as importing contacts and call histories - as well as moving the audio from your mobile phone to a different endpoint when you get closer to these endpoints. You can also pair your mobile device with Cisco room-based video collaboration endpoints for endpoint control and content sharing.

- **Voice and video escalation tools** enable you to escalate one form of conversation, a chat conversation or a phone call, for example, into a different form, a web or video conference, for example. These tools support 1:1 as well as multiparty conferencing escalations. And they are all right within the original application. The Cisco Collaboration portfolio enables people to work together easily and efficiently, with the level of communication they need.
- **Self-service user portals** enable you to customize and personalize your service preferences through easy-to-use self-service user portals. Thus you are empowered and IT has one less set of management tasks. You can select IP phone and mobility options through your Cisco Unified Communications Manager phone portal, and also configure the layout and Personal Identification Number (PIN) of your Cisco Collaboration Meeting Rooms (CMR) experience through your Cisco TelePresence user portal, enabling a more intuitive, familiar experience for every meeting.
- **Consistent meeting experiences.** Cisco enables a consistent launch, join, and in-meeting experience for you on your mobile, desktop, or room-based video-enabled devices. Because Cisco Unified Communications Manager is at the core of the architecture, we have a single call-control solution for all endpoints, including instant messaging and presence capabilities for Cisco voice and video phones, and for new Cisco Collaboration endpoints. With a common dial plan and common phonebook for all devices; extension mobility; and enabling all users to share consistent video, audio, and content-sharing experiences, anyone can join a meeting from their preferred device and get a consistent experience, with views optimized for each device.
- **Speaker tracking** puts intelligence into the camera of certain Cisco room systems. The Cisco TelePresence SpeakerTrack 60 employs an innovative dual-camera approach to tracking. One camera quickly locates the active speaker and presents a close-up of that speaker, while the other camera readies to seek and display the next active speaker. This scenario results in very fast camera switching and an uninterrupted meeting experience.
- **Active controls** let you adjust your conferencing experience to meet your needs. You can select your preferred layout and view to manage participants, see who is speaking or presenting, and easily manage general meeting logistics (such as muting lines to eliminate background noise) to help ensure a great meeting experience for all.

Cisco is the only company that can offer all of these features; no other company has the scope of solution, breadth of technologies, and fabric to tie it all together to deliver the value of an end-to-end infrastructure approach. In addition, the Cisco open, vendor-agnostic approach and support for industry standards means that you don't have to worry about vendor lock-in, and you can continue to use your existing investments in systems and equipment. Also, Cisco provides powerful tools designed to help IT manage the deployment, upgrade, and migration process, giving you control of how and when to transition and minimizing risk.

Summary

Collaboration technology comes in many forms and is available from many vendors. It is worth taking the time, to define your overall collaboration goals, including what you want the technology to deliver and to whom, before making a purchase decision. A short-sighted decision may address certain immediate pain points, but typically delivers limited value and can actually work against an organization's collaboration strategy by introducing complexity and offering only limited compatibility. Collaboration components deployed without a coherent strategic approach can serve as a distraction that actually reduces efficiency.

Technology provides value when we can use it to automate and simplify common tasks; access, manage, and share relevant information; and connect people effectively and intuitively, without a steep learning curve. Taking the long view when creating such a strategy will deliver huge benefits over time and help ensure good adoption and use of your investment as well as a great user experience.

The keys to a successful collaboration implementation include the following:

- Provide a great and consistent user experience across the spectrum of devices, applications, and endpoints that users at all levels will use.
- Make the collaboration experience accessible to all the users engaged in the workflow (inside or outside your organization).
- Provide IT with the tools to manage and monitor such a solution without increasing workload and complexity.

Cisco has developed the end-to-end collaboration core infrastructure approach that delivers on these objectives.

Following are some important suggestions for those considering a collaboration solution:

- Take the time to identify and articulate your overall collaboration goals: Who do you want to use it, on what devices and equipment, and in what locations? Collaboration only from point A to point B is not true collaboration, nor is collaboration that is limited to particular people, devices, or locations.
- Understand exactly who will support your collaboration solution if a problem arises, and what the process will be for pinpointing and resolution. This understanding is particularly important with multivendor solutions. An end-to-end core collaboration infrastructure solution involves no finger-pointing because a single company stands behind all components of the solution: the call control, the voice and video devices, the applications, the network layer, and the management tool.
- Ask questions about how the solution you choose will be managed. Ensure that your IT department will not be overwhelmed with a new set of complex management tools. A huge advantage of an end-to-end solution is that IT is empowered with a single, comprehensive tool that gives them visibility across their entire deployment: the servers, network, devices and endpoints, and applications. Again, IT has one tool to manage and monitor it all, and that feature is powerful.
- Build your collaboration strategy atop a core foundation that that will not only deliver the collaboration experience you want today, but is expandable in the future.

To learn more and find out how collaboration can transform your business, contact your Cisco partner or account manager today.

Additional Resources

- Cisco Unified Communications Overview Page:
<http://www.cisco.com/c/en/us/products/unified-communications/index.html>
- Collaboration Solutions Design Guidance:
http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/uc_system/design/guides/UCgoList.html



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